

WHAT IS CLAIMED IS:

1. A method for supply line management, comprising:  
generating an inventory projection based on supply line information;  
generating a net delta change recommendation based on the supply line information  
and the inventory projection.
2. The method according to claim 1, further comprising:  
preparing the supply line information prior to said generating the inventory projection.
3. A method for generating a net delta change recommendation, comprising:  
accessing supply line information and an inventory projection generated based on the  
supply line information;  
determining an appropriate calculation window;  
adjusting, if there is a target inventory during a period within the calculation window,  
by an net delta change adjustment mechanism, the inventory projection to meet the target  
inventory; and  
generating, if there is either a below minimum inventory excursion, with respect to a  
minimum goal, or an above maximum inventory excursion, with respect to a maximum goal,  
by an net delta change generation mechanism, an net delta recommendation to remove the  
excursion.
4. The method according to claim 3, wherein the supply line information includes at  
least some of:

inventory data;

an inventory goal; and

an inventory model.

5. The method according to claim 4, wherein

the inventory data includes at least some of:

inventory forecast,

inventory backlog, and

inventory transit;

the inventory goal includes at least one of:

a minimum goal comprising at least a minimum inventory quantity,

a maximum goal comprising at least a maximum inventory quantity, and

an inventory target comprising at least a target inventory quantity and a target

date; and

the inventory model includes at least one of:

a beginning on hand model indicating inventory on hand at beginning of a day,

and

an ending on hand model indicating inventory on hand at ending of a day.

6. The method according to claim 5, wherein said adjusting the inventory projection comprises:

obtaining the target inventory quantity of an inventory target from the supply line information;

increasing, if the inventory projection on the day prior to the target date of the inventory target is lower than the target inventory quantity, the net delta change of the current valid receiving day to meet the target inventory; and

decreasing, if the inventory projection on the day prior to the target date of the inventory target is higher than the target inventory quantity, the net delta changes in an appropriate period within the calculation window through at least one of:

reducing positive net delta changes in the appropriate period without causing a below minimum excursion,

increasing negative net delta changes in the appropriate period without causing the below minimum excursion, and

creating negative net delta changes in the appropriate period without causing the below minimum excursion.

7. The method according to claim 4, wherein said generating a net delta recommendation comprises:

determining the excursion type as either below minimum excursion or above maximum excursion;

handling, by a below minimum excursion handler, below minimum excursion, if the below minimum excursion is determined; and

handling, by an above maximum excursion handler, above maximum excursion, if the above maximum excursion is determined.

8. The method according to claim 7, wherein said handling below minimum excursion comprises:

identifying the maximum below minimum delta within an appropriate period;

adding the maximum below minimum delta to the net delta change to generate an updated net delta change;

projecting inventory based on the updated net delta change to generate an updated inventory projection;

determining, based on the updated inventory projection, whether there is still an excursion and the corresponding excursion date;

performing below minimum aggregation, if a below minimum excursion is determined;

performing below minimum buffering; and

projecting inventory based on the results from the below minimum aggregation and the below minimum buffering.

9. The method according to claim 8, wherein

said performing below minimum aggregation comprises:

determining a below minimum delta as the difference between a minimum goal and the updated inventory projection on the excursion date,

computing a below maximum delta as the minimum difference between a maximum goal and the updated inventory projection in an appropriate period,

adding, if the below minimum delta is greater than the below maximum delta, the below minimum delta to the net delta change,

projecting inventory, based on the updated net delta change, to produce a new updated inventory projection,

determining whether there is an inventory excursion and the corresponding inventory excursion date,

setting an appropriate buffer end date if the inventory excursion does not exist, and

repeating the below minimum aggregation if the inventory excursion is smaller than the maximum goal; and

said performing below minimum buffering comprises:

determining an above minimum delta as the smallest difference between the new updated inventory projection and the minimum goal in an appropriate period,

determining a below maximum delta as the smallest difference between the new update inventory projection and the maximum goal in the appropriate period, and

updating, if the below maximum delta is greater than the above minimum delta, the net delta change based on the difference between the below maximum delta and the above minimum delta.

10. The method according to claim 7, wherein said handling above maximum excursion comprises:

computing an above minimum delta and an above maximum delta;

generating an net delta change for the excursion date based on the smallest value of the above minimum delta, the above maximum delta, and the inventory backlog;

determining whether the net delta change, generated by the generating, is equal to the above maximum delta;

projecting inventory based on the net delta change, generated by the generating, if the net delta change is equal to the above maximum delta, to generate an updated inventory projection;

determining, based on the updated inventory projection, whether there is still an excursion and its corresponding excursion date;

performing above maximum aggregation, if an above maximum excursion is determined;

performing above maximum buffering; and

projecting inventory based on the results from the above maximum aggregation and the above maximum buffering.

11. The method according to claim 10, wherein

said performing above maximum aggregation comprises:

determining an above maximum delta as the difference between the maximum goal and the updated inventory projection on the excursion date,

computing an above minimum delta as the minimum difference between the minimal goal and the updated inventory projection in an appropriate period within the calculation window,

adding, if the above maximum delta is lower than the above minimum delta and the above maximum delta is lower than the inventory backlog, the above maximum delta to the net delta change to generate an updated net delta change,

projecting inventory, based on the updated net delta change, to produce a new updated inventory projection,

determining whether there is an inventory excursion and the corresponding inventory excursion date,

setting an appropriate buffer end date if the inventory excursion does not exceed the maximum goal, and

repeating the above maximum aggregation if the inventory excursion amount is greater than the maximum goal;

said performing above maximum buffering comprises:

setting an starting buffer date to be current processing date,

determining a below maximum delta as the smallest difference between the new updated inventory projection and the maximum goal in an appropriate period starting from the starting buffer date,

determining an above minimum delta as the smallest difference between the new update inventory projection and the minimum goal in the appropriate period, and

updating, if the above minimum delta is greater than the below maximum delta, the net delta change based on the difference between the below maximum delta and the above minimum delta, the inventory backlog, and the cumulative net delta changes on the starting buffer date.

12. A system for supply line management, comprising:

an inventory projection mechanism for generating inventory projection based on the supply line information; and

a net delta recommendation mechanism for generating net delta recommendations based on both the supply line information, retrieved from the supply line information storage, and the inventory projection, generated by the inventory projection mechanism.

13. The system according to claim 16, wherein the net delta recommendation mechanism comprises:

a net delta change adjustment mechanism for adjusting existing an net delta change to meet a target inventory; and

a net delta change generation mechanism for generating a net delta change when an inventory excursion is detected.

14. The system according to claim 13, further comprising:

a net delta change aggregation mechanism for aggregating net delta changes; and

a net delta change buffering mechanism for buffering net delta changes.

15. The system according to claim 14, further comprising:

a supply line information preparation mechanism for generating the supply line information.

16. A system for generating a net delta recommendation, comprising:

an net delta change adjustment mechanism for adjusting an existing net delta change to meet a target inventory based on the supply line information and an inventory projection; and



an net delta change generation mechanism for generating a net delta change based on the supply line information and the inventory projection when either a below minimum inventory excursion, with respect to a minimum goal, or an above maximum inventory excursion, with respect to a maximum goal, is detected.

17. The system according to claim 16, wherein the net delta change generation mechanism comprises:

a below minimum excursion handler for generating a net delta change recommendation when the below minimum inventory excursion is detected; and

an above maximum excursion handler for generating a net delta change recommendation that minimizes above maximum excursion, when an above maximum excursion is detected.

18. The system according to claim 17, further comprising:

an net delta change aggregation mechanism for aggregating net delta changes based on the net delta change recommendation generated by either the below minimum excursion handler or the above maximum excursion handler; and

an net delta change buffering mechanism for buffering net delta changes based on the net delta change recommendation generated by either the below minimum excursion handler or the above maximum excursion handler.

19. The system according to claim 18, wherein the net delta change aggregation mechanism includes at least one of:

a below minimum aggregation mechanism for aggregating net delta changes when the below minimum inventory excursion is detected; and

an above maximum aggregation mechanism for aggregating net delta changes when the above maximum inventory excursion is detected.

20. The system according to claim 19, wherein the net delta change buffering mechanism includes at least one of:

a below minimum buffering mechanism for buffering net delta changes when the below minimum inventory excursion is detected; and

an above maximum buffering mechanism for buffering net delta changes when the above maximum inventory excursion is detected.

21. A machine-accessible medium encoded with data for supply line management, the data, when accessed, causing:

generating an inventory projection based on supply line information;

generating a net delta change recommendation based on the supply line information and the inventory projection.

22. The machine-accessible medium according to claim 21, the data, when accessed, further causing:

preparing, by a supply line information preparation mechanism, the supply line information prior to said generating the inventory projection.

23. A machine-accessible medium encoded with data for generating a net delta change recommendation, the data, when accessed, causing:

- accessing supply line information and an inventory projection;
- determining an appropriate calculation window;
- adjusting, if there is a target inventory during a period within the calculation window, by an net delta change adjustment mechanism, the inventory projection to meet the target inventory; and
- generating, if there is either a below minimum inventory excursion, with respect to a minimum goal, or an above maximum inventory excursion, with respect to a maximum goal, by an net delta change generation mechanism, an net delta recommendation to remove the excursion.

24. The medium according to claim 23, wherein said adjusting the inventory projection comprises:

- obtaining the target inventory quantity of the inventory target from the supply line information;
- increasing, if the inventory projection on the day prior to the target date of the inventory target is lower than the target inventory quantity, the net delta change of the current valid receiving day, to meet the target inventory;
- decreasing, if the inventory projection on the day prior to the target date of the inventory target is higher than the target inventory quantity, the net delta changes in an appropriate period within the calculation winow through at least one of:

reducing positive net delta changes in the appropriate period without causing a below minimum excursion;

increasing negative net delta changes in the appropriate period without causing the below minimum excursion; and

creating negative net delta changes in the appropriate period without causing the below minimum excursion.

25. The medium according to claim 23, wherein said generating a net delta recommendation comprises:

determining the excursion type as either below minimum excursion or above maximum excursion;

handling, by a below minimum excursion handler, below minimum excursion, if the below minimum excursion is determined; and

handling, by a above maximum excursion handler, above maximum excursion, if the above maximum excursion is determined.

26. The medium according to claim 25, wherein said handling below minimum excursion comprises:

identifying the maximum below minimum delta within an appropriate period;

adding the maximum below minimum delta to the net delta change to generate an updated net delta change;

projecting inventory based on the updated net delta change to generate an updated inventory projection;

determining, based on the updated inventory projection, whether there is still an excursion and the corresponding excursion date;

performing below minimum aggregation, if a below minimum excursion is determined;

performing below minimum buffering; and

projecting inventory based on the results from the below minimum aggregation and the below minimum buffering.

27. The medium according to claim 26, wherein

said performing below minimum aggregation comprises:

determining a below minimum delta as the difference between a minimum goal and the updated inventory projection on the excursion date,

computing a below maximum delta as the minimum difference between a maximum goal and the updated inventory projection in an appropriate period,

adding, if the below minimum delta is greater than the below maximum delta, the below minimum delta to the net delta change,

projecting inventory, based on the updated net delta change, to produce a new updated inventory projection,

determining whether there is an inventory excursion and the corresponding inventory excursion date,

setting an appropriate buffer end date if the inventory excursion does not exist, and

repeating the below minimum aggregation if the inventory excursion is smaller than the maximum goal; and

said performing below minimum buffering comprises:

determining an above minimum delta as the smallest difference between the new updated inventory projection and the minimum goal in an appropriate period,

determining a below maximum delta as the smallest difference between the new update inventory projection and the maximum goal in the appropriate period, and

updating, if the below maximum delta is greater than the above minimum delta, the net delta change based on the difference between the below maximum delta and the above minimum delta.

28. The medium according to claim 25, wherein said handling above maximum excursion comprises:

computing an above minimum delta and an above maximum delta;

generating an net delta change for the excursion date based on the smallest value of the above minimum delta, the above maximum delta, and the inventory backlog;

determining whether the net delta change, generated by the generating, is equal to the above maximum delta;

projecting inventory based on the net delta change, generated by the generating, if the net delta change is equal to the above maximum delta, to generate an updated inventory projection;

determining, based on the updated inventory projection, whether there is still an excursion and its corresponding excursion date;

performing above maximum aggregation, if an above maximum excursion is determined;

performing above maximum buffering; and  
projecting inventory based on the results from the above maximum aggregation and the above maximum buffering.

29. The medium according to claim 28, wherein

said performing above maximum aggregation comprises:

determining an above maximum delta as the difference between the maximum goal and the updated inventory projection on the excursion date,

computing an above minimum delta as the minimum difference between the minimal goal and the updated inventory projection in an appropriate period within the calculation window,

adding, if the above maximum delta is lower than the above minimum delta and the above maximum delta is lower than the inventory backlog, the above maximum delta to the net delta change to generate an updated net delta change,

projecting inventory, based on the updated net delta change, to produce a new updated inventory projection,

determining whether there is an inventory excursion and the corresponding inventory excursion date,

setting an appropriate buffer end date if the inventory excursion does not exceed the maximum goal, and

repeating the above maximum aggregation if the inventory excursion amount is greater than the maximum goal; and

said performing above maximum buffering comprises:

setting an starting buffer date to be current processing date,

determining a below maximum delta as the smallest difference between the new updated inventory projection and the maximum goal in an appropriate period starting from the starting buffer date,

determining an above minimum delta as the smallest difference between the new update inventory projection and the minimum goal in the appropriate period, and

updating, if the above minimum delta is greater than the below maximum delta, the net delta change based on the difference between the below maximum delta and the above minimum delta, the inventory backlog, and the cumulative net delta changes on the starting buffer date.